

IPC-6806S

**Wallmount IPC Chassis for 6
Half-sized Cards**

User Manual

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from Advantech. Please contact your local supplier for ordering information.

FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Technical Support and Assistance

1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such comments in writing to: support@advantech.com

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- IPC-6806S chassis
- A pair of wallmount brackets
- User manual
- Warranty card
- Accessory box, including one spare fan filter, two USB covers, one EMI spring plate (bare chassis only), one 34-pin flat cable for connecting a FDD, one 40-pin flat cable for connecting an IDE/ATA HDD, and three bags of screws for fastening the disk drives, passive backplane and wallmount brackets.

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.

13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW - 20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Wichtige Sicherheitshinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschlUBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.

6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
 - a. Netzkabel oder Netzstecker sind beschädigt.
 - b. Flüssigkeit ist in das Gerät eingedrungen.
 - c. Das Gerät war Feuchtigkeit ausgesetzt.
 - d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
 - e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
 - f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
15. **VORSICHT:** Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlene-mähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.
16. **ACHTUNG:** Es besteht die Explosionsgefahr, falls die Batterie auf nicht fach-männische Weise gewechselt wird. Verfangen Sie die

Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

1. To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
2. Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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CHAPTER
1

General Information

Chapter 1 General Information

1.1 Introduction

Specially designed for the factory floor and other harsh industrial environments, the IPC-6806S IPC chassis is ideal for system integrators or users who require a compact and rugged system. The chassis comes with a 1U-high 150 W ATX power supply and can accept one 3.5" FDD, one internal 3.5" HDD, and a 6-slot passive backplane to support up to six half-sized cards. With the supplied mounting brackets, the IPC-6806S can be easily mounted on panels or walls.

1.2 Specifications

- **Construction:** Heavy-duty steel
- **Disk drive capacity:** One 3.5" FDD and one internal 3.5" HDD
- **Indicators on front panel:** LEDs for Power On/Off and HDD
- **Switches on front panel:** Power switch and Reset switch
- **I/O interface on the front panel:** Dual USBs
- **I/O interfaces on rear panel:** One reserved opening for the 25-pin parallel port, and two for the 9-pin COM port
- **Cooling fan:** One 53-CFM fan on front panel with air filter
- **Weight:** 4.5 kg (9.9 lb) with 150 W power supply
- **Dimensions (W x H x D):** 191 x 170 x 285 mm (7.5" x 6.7" x 11.2")

1.3 Environmental Specifications

- **Temperature:**
 - (Operating) 0 to 40° C (32 to 104° F)
 - (Storage) -20 to 60° C (-4 to 140° F)
- **Humidity:**
 - (Operating) 10 to 85% @ 40° C, non-condensing
 - (Non-operating) 10 to 95% @ 40° C, non-condensing

- **Vibration (5 ~ 500 MHz):**
 - (Operating) 0.5 Grms
 - (Non-operating) 2 G
- **Shock:**
 - (Operating) 10 G with 11 ms duration, half sine wave
 - (Non-operating) 30 G with 11 ms duration
- **Acoustic Noise:** < 52 dB sound pressure at 5 ~ 28° C (41 ~ 82° F)
- **Altitude (Operating):** 0 to 3,048 m (0 ~ 10,000 ft)
- **Safety:** CE compliant, UL/cUL approved

1.4 Power Supply

1U-high 150 W ATX Power Supply with PFC (part number: 1757000209)

- Output rating: 150 W maximum
- Input rating: 100 ~ 240 V_{AC} @ 50 ~ 60 Hz (Full range)
- Output voltage: +5 V @ 16 A, +3.3 V @ 10 A, +12 V @ 9 A, -12 V @ 0.7 A, -5 V @ 0.2 A, +5 Vsb @ 1.5 A
- Minimum load: +5 V @ 2 A, +12 V @ 1 A, +3.3 V @ 1 A
- MTBF: 84,000 hours @ 25° C, full load
- Safety: CE/UL/TUV/CB/CCC

1.5 Passive Backplanes Options

IPC-6806S can accept a 6-slot half-sized passive backplane to support up to six full-sized cards. The PCA-6106-B can support up to six ISA cards, while the PCA-6105P5-0B1 can support up to five PCI cards, including one PCI-bus CPU card. For more information about the PCA-6106-B or PCA-6105P5-0B1, please refer to Appendix B.

Part Number	Slots	Segment
PCA-6106-B	6 ISA	Single
PCA-6105P5-0B1	4 PCI, 1 CPU-PCI	Single

1.6 Dimensions of IPC-6806S

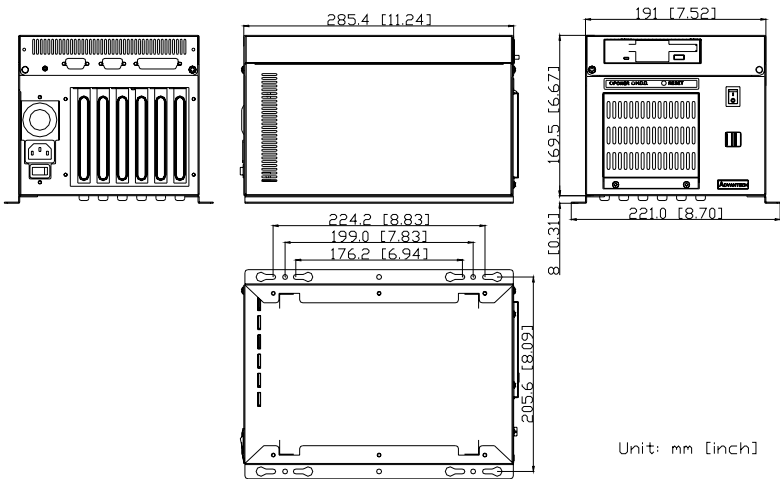
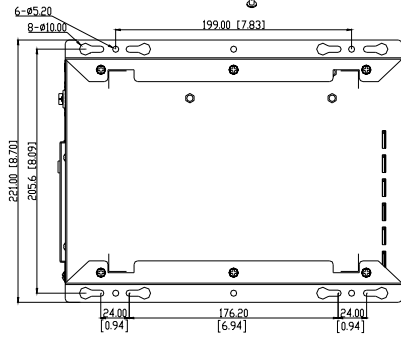
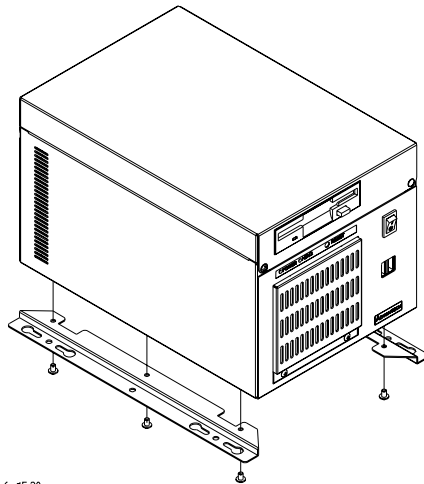


Figure 1.1: Dimensions of IPC-6806S



Unit: mm [inch]

Figure 1.2: Details of wallmount brackets

CHAPTER
2

System Setup

Chapter 2 System Setup

The following procedures are provided to assist you in installing a backplane, CPU board, drives, and add-in cards into IPC-6806S chassis. Please also refer to the Appendix A, Exploded Diagram, for the name of each part referred to in this manual.

Note *To shorten the total system installation time, we suggest users install a passive backplane first, then CPU and add-in card(s), and finally, the drive bay.*

Note *Use caution when installing or operating the components with the chassis open. Be sure to turn off the power, unplug the power cord and ground yourself by touching the metal chassis before you handle any components inside the machine.*

2.1 Opening the cover

To open the cover of the IPC-6806S, proceed as follows.

1. Remove two screws (one on each side) which secure the cover to the card cage (see Figure 2-1).
2. Lift the lid to expose the interior of the chassis.

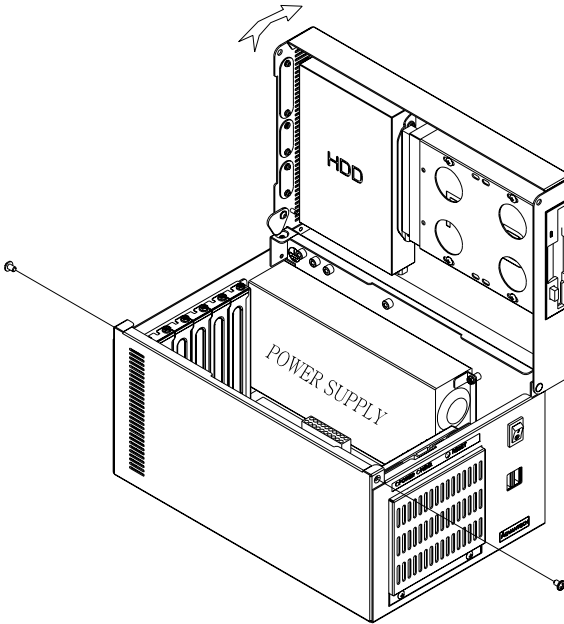


Figure 2.1: Opening the top cover

2.2 Installing passive backplane & CPU card

IPC-6806S accepts a 6-slot passive backplane to support up to six half-sized cards. To install a backplane and a CPU card, refer to Figure 2-2 and proceed as follows:

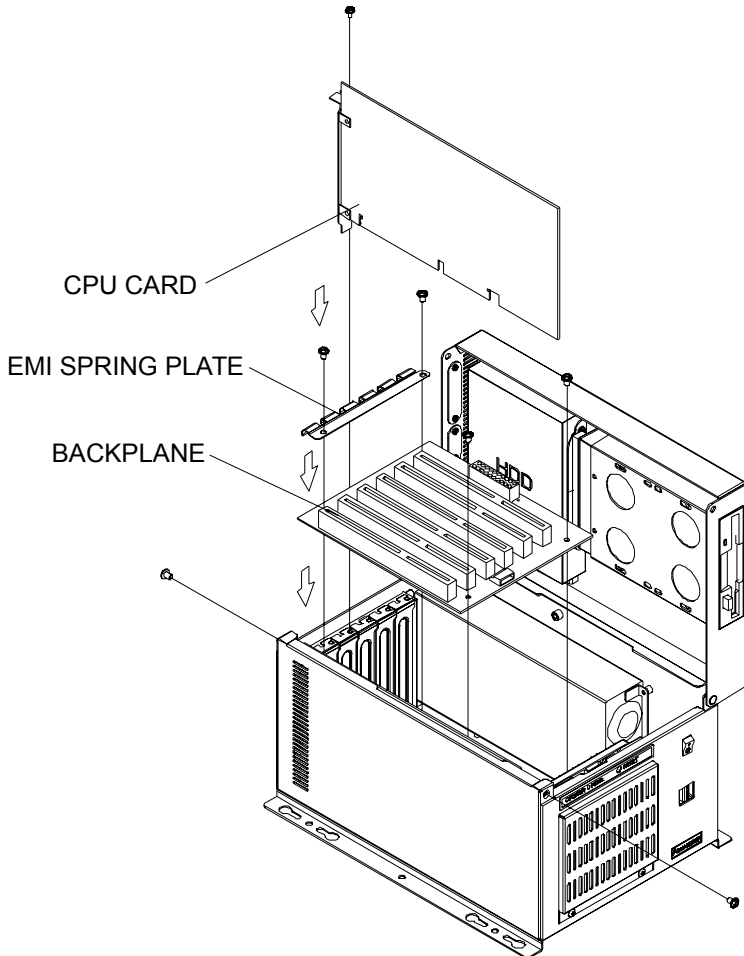


Figure 2.2: Installing a backplane & CPU card

1. Referring to Figure 2-2, carefully place the passive backplane and EMI spring plate in the IPC-6806S chassis and fix it with screws. For the bare IPC-6806S chassis, the EMI spring plate is stored in the accessory box.
2. Before installing the CPU card, check all devices, such as CPU, CPU cooler, and RAM modules, then make sure they have been installed on the CPU card correctly.
3. Carefully insert the CPU card in to the master slot of the backplane. Make sure that the card bracket has been inserted properly and the other edge of the card has been fixed in the guiding rail. Fasten the card at the top of the bracket with a screw.
4. Plug the 20-pin ATX power connector from the power supply into the backplane. Connect the POWER SW connector to the PS-ON connector (CN1) on the backplane.
5. Connect the RESET SW, POWER LED, and HDD LED cables to the CPU card. Connect the USB cable from the front panel to the CPU card, if the CPU card supports the front USB feature.

2.3 Installing disk drives

IPC-6806S accepts one floppy disk drive, and one internal SATA/ATA HDD. To install the disk drives, refer to Figure 2-3 and proceed as follows:

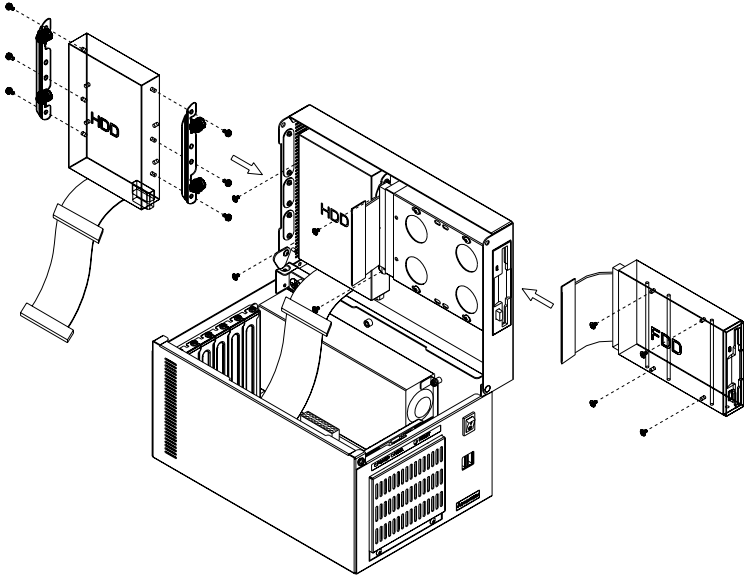


Figure 2.3: Installing drives

2.3.1 Hard disk drive

1. Detach the HDD mounting brackets by removing the four retaining screws.
2. Refer to Figure 2-3, align the holes on each side of the HDD with those of the HDD mounting brackets and fix the HDD with screws.
3. Place the HDD together with HDD mounting brackets to the inside of the top cover of IPC-6806S, and fix it with the four screws removed in Step 1.
4. Connect a 40-pin flat cable from the CPU card to an ATA (IDE) HDD or a SATA cable from the CPU card to a SATA HDD.
5. Plug-in a peripheral power connector into the HDD.

2.3.2 Floppy disk drive

1. Remove the blanking covers of the 3.5" drive bay.
2. Referring to Figure 2-3, insert a FDD into the drive bay with the base facing inward. Fix the drive with screws.
3. Connect 34-pin flat cable from the CPU card to the FDD.
4. Plug a floppy drive power connector into the FDD.

2.4 Installing add-in cards

IPC-6806S can accept up to six half-sized cards (including a CPU card) via the supported passive backplane. To install an add-in card, refer to Figure 2-4 and proceed as follows:

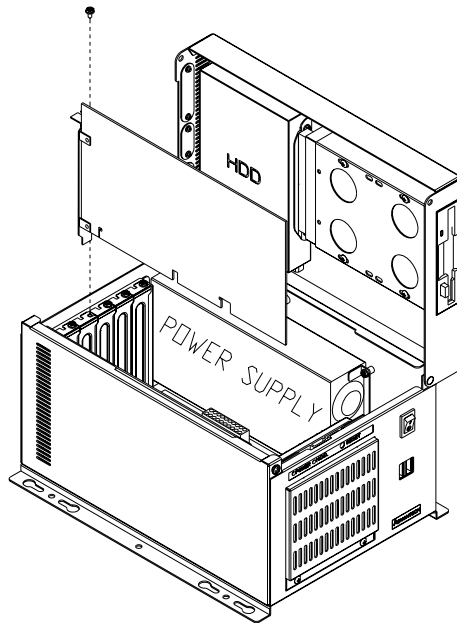


Figure 2.4: Installing an add-in card

1. Find the slot(s) in which card(s) are to be inserted and remove the slot's blank bracket(s) attached to the rear plate of the chassis.
2. Insert a plug-in card. Make sure that the card bracket has been inserted properly. Fasten the card at the top of the bracket with a screw.
3. Repeat Step 2 if there is more than one card.

2.5 Installing wallmount brackets

IPC-6806S provides a pair of wallmount brackets in the accessory pack. To wall-mount your chassis, refer to Figure 2-5 and proceeds follows.

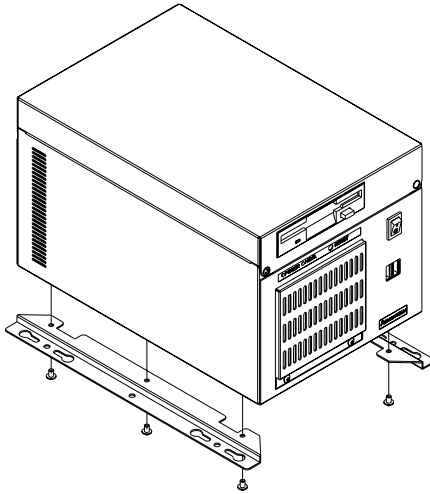


Figure 2.5: Install wallmount brackets

1. Attach the wallmount brackets to the bottom of the chassis and fix them with the six provided screws.
2. Secure the chassis to the wall with four screws provided. Make sure that the chassis is mounted securely.

CHAPTER
3

Operation

Chapter 3 Operation

3.1 The Front Section of IPC-6806S

3.1.1 Switches

Two switches are used for system power on-off and system reset.

- **System Reset Switch:** Press this switch to reinitialize the system.
- **Power On-Off Switch:** Use this switch to turn on/off the system power.

3.1.2 LED indicators

Two LEDs are placed to indicate the system status. Please refer to Table 3-1 for the LED summary.

Table 3.1: System status LED summary

LED	Description	Green/Orange
PWR	System Power	Normal
HDD	Hard Drive Disk Activity	Read/Write Data

If the system is connected with a single power supply, the PWR LED is always Green when power on.

3.2 Replacing the fan and fan filter

To replace the system fan or fan filter at the front end of the chassis, refer to Figure 3-1 and proceed as follows:

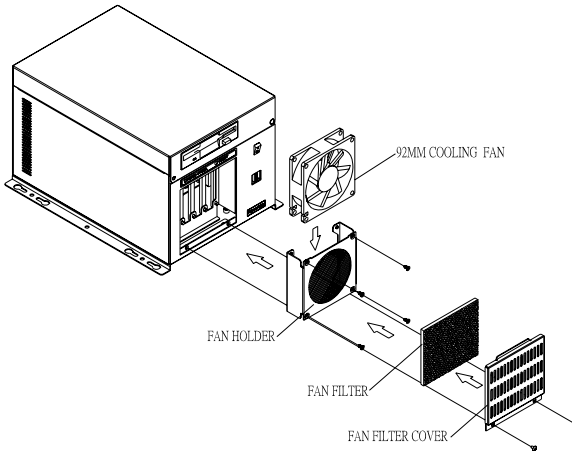


Figure 3.1: Changing the fan and filter

3.2.1 Replace the fan filter

1. Remove the two screws located at the bottom of the filter cover. Gently but firmly pull the fan filter cover free from the chassis.
2. Remove the fan filter and replace it with a new one.

3.2.2 Replace the system fan

1. Remove the fan holder from the chassis.
2. Unplug the fan power connector.
3. Remove the four screws, which mount the fan to the fan holder, and take out the fan.
4. Place a new fan in the fan holder, and fasten it with four screws.
5. Return the fan holder and plug in the fan power connector from inside the chassis.
6. Return the fan filter and the fan filter cover, and fasten the filter cover with two screws.

3.3 Replacing the power supply

IPC-6806S supports a single 1U-high power supply. To change the power supply, refer to Figure 3-2 and proceed as follows:

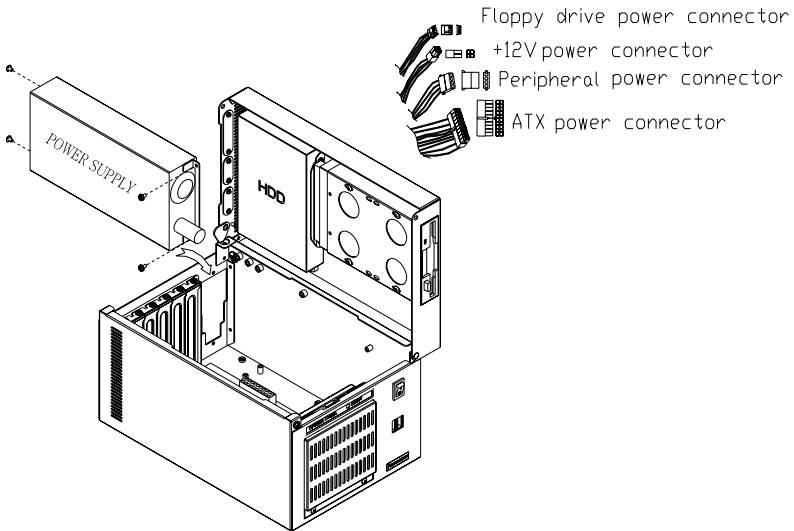


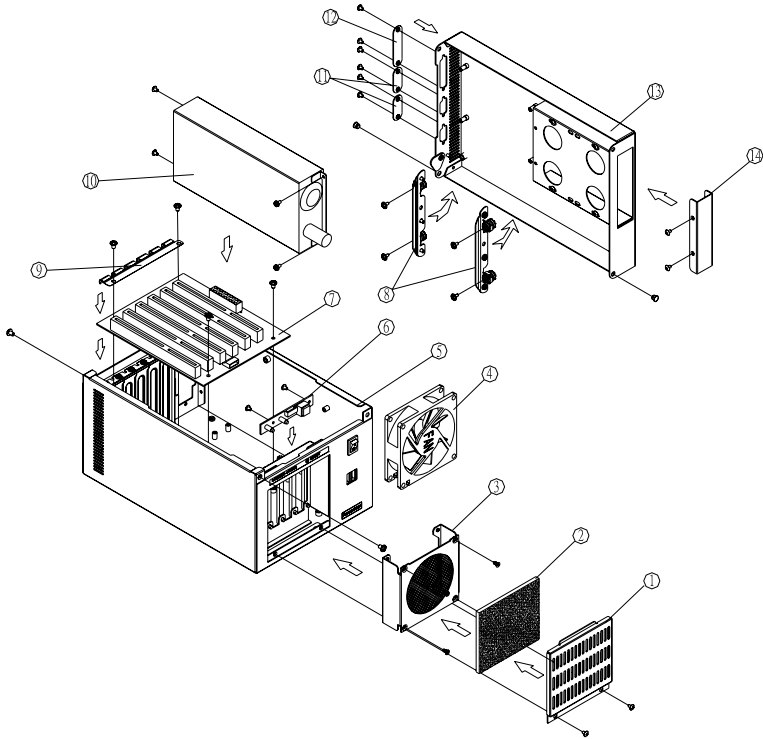
Figure 3.2: Changing the power supply

1. Unplug the power cord from the power supply of the IPC-6806S.
2. Open the top cover of the chassis.
3. Unplug the ATX power connector from the passive backplane, +12V power connector from the CPU card, and the peripheral power connector(s) from the drive disk(s).
4. Refer to Figure 3-2 to remove the four screws, which mount the power supply to the chassis, then lift the power supply.
5. Place a new power supply into the chassis and fasten it with the screws.
6. Plug the ATX power connector into the passive backplane, +12V power connector into the CPU card, and the peripheral power connector(s) into the peripheral disk drive(s).
7. Return the cover of the IPC-6806S and plug in the power cord.

APPENDIX
A

Exploded Diagram

Appendix A Exploded Diagram



PARTS LIST			
1.	FAN FILTER COVER	8.	HDD MOUNTING BRACKET
2.	FAN FILTER	9.	EMI SPRING PLATE
3.	FAN HOLDER	10.	POWER SUPPLY
4.	92MM COOLING FAN	11.	9-PIN COM COVER
5.	BODY OF CHASSIS	12.	15-PIN COM COVER
6.	LED BOARD	13.	TOP COVER
7.	BACKPLANE	14.	3.5" FDD COVER

Figure A.1: Exploded Diagram

APPENDIX
B

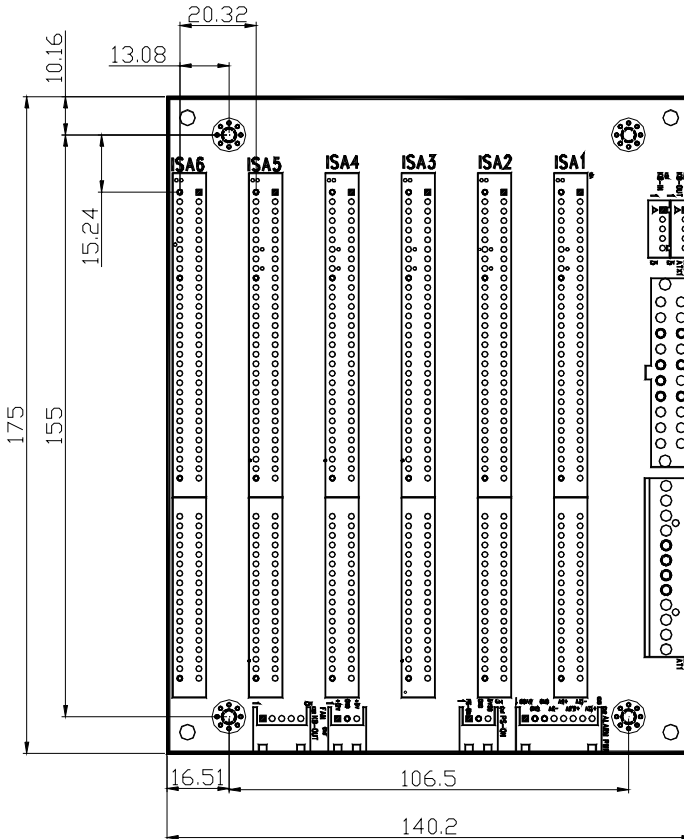
Passive Backplanes

Appendix B Passive Backplanes

B.1 PCA-6106-B: 6-slot ISA backplane

B.1.1 Dimension Drawing

Size: 140.2 x 175 mm



B.1.2 Connectors

Connector	Description
ISA1 ~ 6	16-bit ISA bus connector
KB1	KB-In, from CPU card K/B connector
KB2 ~ 3	KB-Out, 5-pin external K/B connector
AT1	AT power connector
ATX1	ATX power connector
CN1	PS-ON function, 3-pin connector to CPU card for ATX signal
CN2	8-pin alarm board power connector
CN3	3-pin +5V and +12V power connector

B.1.3 Connector Pin Definition

KB1 ~ 3 Connector

Pin	Signal
1	KBCLK
2	KBDATA
3	NC
4	KBGND
5	KBVCC

AT1 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	NC	4	-12V	7	GND	10	+5V
2	+5V	5	GND	8	GND	11	+5V
3	+12V	6	GND	9	-5V	12	+5V

ATX1 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+3.3V	6	+5V	11	+3.3V	16	GND
2	+3.3V	7	GND	12	-12V	17	GND
3	GND	8	NC	13	GND	18	-5V
4	+5V	9	+5VSB	14	PS-ON	19	+5V
5	GND	10	+12V	15	GND	20	+5V

CN1 Connector

Pin	Signal
1	PS-ON
2	GND
3	+5VSB

CN2 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+5VSB	3	GND	5	+5V	7	-12V
2	GND	4	-5V	6	+3.3V	8	+12V

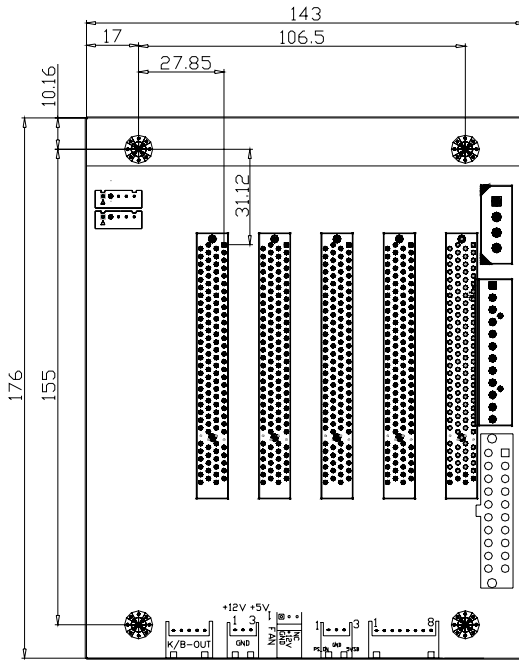
CN3 Connector

Pin	Signal
1	+12V
2	GND
3	+5V

B.2 PCA-6105P5-0B1: 5-slot PCI backplane

B.2.1 Dimension Drawing

Size: 143 x 176 mm



B.2.2 Connectors

Connector	Description
PICMG1	CPU-PCI connector
PCI1 ~ 4	32-bit PCI bus connector
KB1	KB-In, from CPU card K/B connector
KB2 ~ 3	KB-Out, 5-pin external K/B connector
BIG1	Peripheral power connector
AT1	AT power connector
ATX1	24-pin ATX power connector
CN1	PS-ON function, 3-pin connector to CPU card for ATX signal
CN2	8-pin alarm board power connector
CN3	3-pin +5V and +12V power connector
CN4	3-pin +12V fan connector

B.2.3 Connector Pin Definition

KB1 ~ 3 Connector

Pin	Signal
1	KBCLK
2	KBDATA
3	NC
4	KBGND
5	KBVCC

AT1 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	NC	4	-12V	7	GND	10	+5V
2	+5V	5	GND	8	GND	11	+5V
3	+12V	6	GND	9	-5V	12	+5V

ATX1 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+3.3V	6	+5V	11	+3.3V	16	GND
2	+3.3V	7	GND	12	-12V	17	GND
3	GND	8	NC	13	GND	18	-5V
4	+5V	9	+5VSB	14	PS-ON	19	+5V
5	GND	10	+12V	15	GND	20	+5V

CN1 Connector

Pin	Signal
1	PS-ON
2	GND
3	+5VSB

CN2 Connector

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	+5VSB	3	GND	5	+5V	7	-12V
2	GND	4	-5V	6	+3.3V	8	+12V

CN3 Connector

Pin	Signal
1	+12V
2	GND
3	+5V

CN3 Connector

Pin	Signal
1	GND
2	+12V
3	NC

BIG1 Connector

Pin	Signal
1	+12V
2	GND
3	GND
4	+5V